

R-F Power Amplifier, Oscillator, Class B Modulator

For illustration, refer to 838 on page 62

RCA-203-A is a three-electrode transmitting tube of the thoriated-tungsten filament type with a maximum plate dissipation rating of 100 watts for class C telegraph and class B services. As a radio-frequency amplifier or oscillator, the 203-A may be operated under maximum rated conditions at frequencies as high as 15 megacycles.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	10.0	Grid-Plate Capacitance	14.5 μ f
Filament Amperes	3.25	Grid-Filament Capacitance	6.5 μ f
Amplification Factor	25	Plate-Filament Capacitance	5.5 μ f

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE	1250 max.	Volts
MAX.-SIGNAL D-C PLATE CURRENT*	175 max.	Milliamperes
MAX.-SIGNAL PLATE INPUT*	220 max.	Watts
PLATE DISSIPATION*	100 max.	Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	1000	1250	Volts
D-C Grid Voltage [§]	-35	-45	Volts
Peak A-F Grid-to-Grid Voltage	310	330	Volts
Zero-Signal D-C Plate Current	26	26	Milliamperes
Max.-Signal D-C Plate Current	320	320	Milliamperes
Load Resistance (Per tube)	1725	2250	Ohms
Effective Load Res. (Plate-to-plate)	6900	9000	Ohms
Max.-Signal Driving Power (Approx.)	10	11	Watts
Max.-Signal Power Output (Approx.)	200	260	Watts

As R-F Power Amplifier—Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

D-C PLATE VOLTAGE	1250 max.	Volts
D-C PLATE CURRENT	150 max.	Milliamperes
PLATE INPUT	150 max.	Watts
PLATE DISSIPATION	100 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	1000	1250	Volts
D-C Grid Voltage [§]	-35	-45	Volts
Peak R-F Grid Voltage	95	90	Volts
D-C Plate Current	130	106	Milliamperes
D-C Grid Current (Approx.)	5	3	Milliamperes
Driving Power (Approx.) [†]	5	3	Watts
Power Output (Approx.)	40	42.5	Watts

*. §. †: see next page.

As Plate-Modulated R-F Power Amplifier—Class C Telephony*Carrier conditions per tube for use with a max. modulation factor of 1.0*

D-C PLATE VOLTAGE	1000 max.	Volts
D-C GRID VOLTAGE	-400 max.	Volts
D-C PLATE CURRENT	175 max.	Milliamperes
D-C GRID CURRENT	60 max.	Milliamperes
PLATE INPUT	175 max.	Watts
PLATE DISSIPATION	67 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	Volts
D-C Grid Voltage [§]	-100	-135	Volts
Peak R-F Grid Voltage	235	275	Volts
D-C Plate Current	150	150	Milliamperes
D-C Grid Current (Approx.)	50	50	Milliamperes
Grid Resistor	2000	2700	Ohms
Driving Power (Approx.)	12	14	Watts
Power Output (Approx.)	65	100	Watts

As R-F Power Amplifier and Oscillator—Class C Telegraphy*Key-down conditions per tube without modulation††*

D-C PLATE VOLTAGE	1250 max.	Volts
D-C GRID VOLTAGE	-400 max.	Volts
D-C PLATE CURRENT	175 max.	Milliamperes
D-C GRID CURRENT	60 max.	Milliamperes
PLATE INPUT	220 max.	Watts
PLATE DISSIPATION	100 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	750	1000	1250	Volts
D-C Grid Voltage [§]	-75	-100	-125	Volts
Peak R-F Grid Voltage	195	225	255	Volts
D-C Plate Current	150	150	150	Milliamperes
D-C Grid Current (Approx.)	25	25	25	Milliamperes
Grid Resistor	3000	4000	5000	Ohms
Driving Power (Approx.)	5	6	7	Watts
Power Output (Approx.)	65	100	130	Watts

* Averaged over any audio-frequency cycle of sine-wave form.

§ Grid voltages are given with respect to the mid-point of filament operated on a.c. If d.c. is used, each stated value of grid voltage should be decreased by 7 volts and the circuit returns made to the negative end of the filament.

† At crest of audio-frequency cycle with modulation factor of 1.0.

†† Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

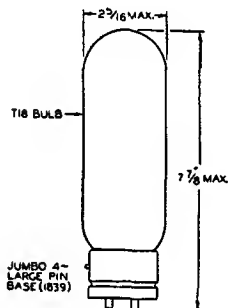
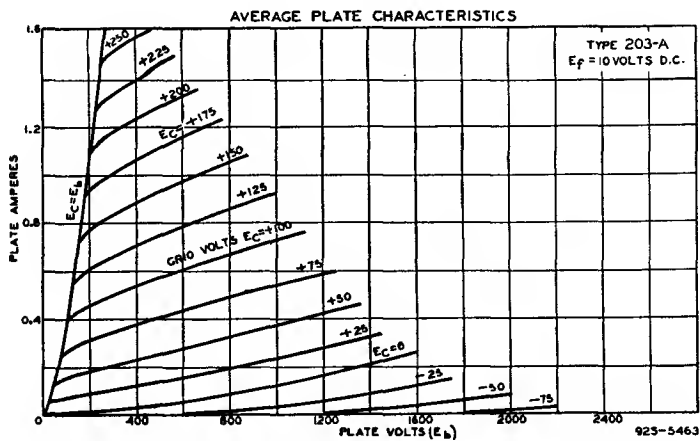
INSTALLATION AND APPLICATION

The base pins of the RCA-203-A fit the standard transmitting four-contact socket, such as the RCA type UT-541A. The socket should be installed so that the tube will operate in a vertical position with the base down.

The plate of the 203-A shows no color at the maximum plate-dissipation rating for each class of service.

For high-frequency operation above 15 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.



Top View of Socket Connections

